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TOOLS TO EVALUATE THE EFFECTIVENESS OF POLICY INSTRUMENTS FOR THE IMPLEMENTATION OF THE STRATEGIC PLAN FOR BIODIVERSITY 2011-2020

Note by the Executive Secretary

I. BACKGROUND

1. Article 26 of the Convention on Biological Diversity calls upon Parties to report on measures taken to implement the Convention and their effectiveness in meeting the objectives of the Convention. The main mechanism for reporting under the Convention is the national report. In section II of the sixth national report template, adopted in decision XIII/27, the Conference of the Parties calls on Parties to report on the measures taken to implement their national biodiversity strategy and action plan as well as to assess the effectiveness of these measures. In doing so, the Conference of the Parties also requested Parties to include, where possible, information on the methodologies and tools used to arrive at these assessments.

2. In the same vein, the Conference of the Parties, in decision XIII/1, encouraged Parties to undertake evaluations of the effectiveness of measures undertaken to implement the Strategic Plan for Biodiversity 2011-2020, to document experiences, including the methodologies applied, to identify lessons learned, and to provide this information to the Executive Secretary, including through their sixth national report and the clearing-house mechanism. A compilation and analysis of information on evaluating the effectiveness of measures undertaken to implement the Strategic Plan for Biodiversity 2011-2020, including the methodologies applied, provided by Parties through their sixth national reports will be prepared for consideration at a meeting of the Subsidiary Body on Scientific, Technical and Technological Advice or the Subsidiary Body on Implementation in 2019 or 2020.

3. The current note is intended to provide guidance to Parties and to support their efforts in undertaking assessments of the effectiveness of measures they have taken to implement their national biodiversity strategy and action plan and to facilitate and encourage reporting on these in the sixth national report.[1] Section II of the present document examines relevant work on effectiveness already undertaken under the Convention on Biological Diversity, including documents previously prepared for meetings of the Subsidiary Body on Scientific, Technical and Technological Advice, and the Ad Hoc Open-ended Working Group on the Review of Implementation of the Convention.[2] Section III, based on

* CBD/SBSTTA/21/1.

[1] A previous version of the present document was made available peer review from 21 June to 30 July 2017. By 21 August, comments had been received from Canada, the European Union, India, Japan and Mexico, as well as IUCN, and Emmaus Aurinkotehdas ry and Adiwasi Samta Manch.

[2] See "Assessing the effects of the types of measures taken in accordance with the provisions of the Convention" (UNEP/CBD/SBSTTA/17/3), "Tools to evaluate the effectiveness of policy instruments for the implementation of the Strategic

academic literature, presents brief descriptions of the types of approaches Parties might consider using as they undertake assessments of the effectiveness of measures taken as well as examples to illustrate the application of these approaches. Section IV contains conclusions. Suggested recommendations for consideration by the Subsidiary Body at its twenty-first meeting are contained in section V.

II. RELEVANT WORK UNDER THE CONVENTION

4. Assessing the effectiveness of measures taken is a process of critical evaluation. Its overall aim is to review the extent to which the outcomes anticipated from a measure or set of measures have been achieved, to reflect upon the likely outcomes from alternative measures, and to consider adjustments of the measure(s) in line with the principle on adaptive management of the ecosystem approach. The information generated from such an assessment allows for the design and implementation of future measures to be improved as well as to demonstrate the overall impact of the measure in the form in which it has been implemented. Assessments are particularly important considering the limited resources available for implementing biodiversity measures. Assessments allow for these limited resources to be put to the best use and can help justify the use of resources by highlighting successful examples of implementation.

5. In many cases, assessments of effectiveness are undertaken as part of a broader review of a sectoral or cross-sectoral policy or strategy. Further, they can be undertaken at different geographic and administrative scales and frequently extend across scales. Depending on the scope of the assessment, resources required for the participation of indigenous peoples and local communities, stakeholder engagement, data collection and expert advice may be significant.

6. Information collected through various processes under the Convention on Biological Diversity indicates that many Parties are evaluating the effectiveness of the measures they are taking to implement their national biodiversity strategies and action plans, the Strategic Pan for Biodiversity 2011-2020 or other measures to implement the Convention. However, specific information on how these evaluations are being carried out is limited. Approximately 45 per cent of the fifth national reports received to date contain explicit assessments of progress towards the Aichi Targets. These assessments, however, have rarely included a critical analysis of the effectiveness of the measures taken to bring about the observed changes.[3] As such, the information in the fifth national reports is insufficient to determine how widespread the use of effectiveness assessments is, to determine what approaches Parties have found useful or to draw conclusions and share any lessons learned.

7. The situation is similar with regard to the national biodiversity strategies and action plans. Of the Parties that have submitted a post-2010 strategy and action plan, 70 mention having conducted an assessment of their previous strategy and action plan as part of, or contributing to, the revision process. However, the specific methods used to assess these is usually not clear nor is the extent to which they look at issues related to effectiveness of the actions that were planned and carried out as part of the implementation of their national biodiversity strategy and action plan.[4] Similarly, in a survey carried out in 2015,[5] 30 Parties indicated that they had assessed the effectiveness of the actions or interventions undertaken to implement their national biodiversity strategies and action plans or related strategies.[6] However, the specific methods used to evaluate effectiveness were not generally specified. Building on the results of this survey, a document examining the tools used by Parties to evaluate the effectiveness of

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Plan for Biodiversity 2011-2020 (UNEP/CBD/SBSTTA/19/4) and "Methodologies of self-assessment by Parties of the implementation of the Convention" (UNEP/CBD/WGRI/5/INF/20).

[3] For further information see UNEP/CBD/COP/13/8/Add.2/Rev.1.

[4] For further information see UNEP/CBD/COP/13/8/Add.1/Rev.1.

[5] In preparation for the meeting of the Ad Hoc Technical Expert Group on Indicators for the Strategic Plan for Biodiversity, convened in Geneva, Switzerland, 14-17 September 2015.

[6] For further information, see UNEP/CBD/SBSTTA/19/4.

policy instruments was issued for the nineteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.[7] This document outlined a variety of approaches being used by countries.

8. A notable exception to the general absence of information on approaches to assessing effectiveness is the management of protected areas. Parties report making use of a variety of tools, including: the protected area management effectiveness assessment methodologies; the Rapid Assessment and Prioritization of Protected Area Management tool; and the Management Effectiveness Tracking Tool, developed by the World Bank and World Wildlife Fund for Nature and the Integrated Management Effectiveness Tool developed as part of the European Union-funded Biodiversity and Protected Areas Management programme. For example, as of January 2015, the Global Database on Protected Area Management Effectiveness had collected 17,739 protected areas management effectiveness assessments, representing 9,037 protected areas. According to a 2015 assessment of submissions to the database, 42 Parties to the Convention had implemented management effectiveness evaluations in at least 60 per cent of their protected areas.[8]

9. As mentioned above, the available information from national reports and national biodiversity strategies and action plans and on protected areas suggests that countries are undertaking evaluations of effectiveness to some degree. However, the information that is available does not allow for the identification of any common methodologies, best practices or lessons learned. More detailed information from Parties on this issue would likely facilitate the inclusion of such information in the sixth national reports by affording Parties an opportunity to learn from the examples and lessons of others and may lead to enhanced national and global level analyses of the effectiveness of measures taken under the Convention.

III. APPROACHES TO EVALUATING THE EFFECTIVENESS OF MEASURES TAKEN UNDER THE CONVENTION

10. Evaluating the effectiveness of a measure taken to reach an objective is not the same as evaluating progress towards the objective itself. Evaluations of effectiveness aim to determine the extent to which a particular measure has brought about, or helped to bring about, the desired outcomes while evaluations of progress assess the extent to which an objective has been met. In considering causes and effects within a field of multiple, often mutually reinforcing and sometimes contradictory, courses of action, effectiveness evaluations are an important element of evidence-based policymaking.

11. Numerous methodologies and approaches to evaluating effectiveness exist, and the present document should therefore not be considered an exhaustive discussion on the issue. In the context of the present document, the word “measure” is taken to refer to any formal action taken by a government in support of the country’s implementation of the Convention. Measures could include policies, legislation and/or programmes and initiatives. Effectiveness evaluations can be carried out on broad policies, such as national strategies, plans or programmes for the conservation and sustainable use of biological diversity or on more specific activities, such as the establishment of a protected area, the implementation of a payment-for-ecosystem-services scheme or an invasive alien species eradication programme.

12. There is a large amount of academic literature, handbooks and guidance related to assessing the effectiveness of actions. This field of study is generally referred to as policy or programme evaluation.[9] Approaches to assessing effectiveness can be broadly classified into three categories:

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[7] See UNEP/CBD/SBSTTA/19/4, paras. 13-33.

[8] For further information see document UNEP/CBD/COP/13/INF/17.

[9] For example see: United Nations Evaluation Group (2016). *Norms and Standards for Evaluation.* New York: UNEG; United Nations Development Programme (2009). *Handbook on Planning, Monitoring and Evaluating for Development Results.* New York: UNDP; Gertler, Paul J., Sebastian Martinez, Patrick Premand, Laura B. Rawlings, and Christel M. J. Vermeersch. 2016. *Impact Evaluation in Practice, second edition*. Washington, DC: Inter-American Development Bank and World Bank; Chen, Huey-Tsych.2005. *Practical Program Evaluation: Assessing and improving planning, implementation, and effectiveness*. Sage Publishing, United States of America, Crabbé, A. and P. Leroy, *The Handbook of Environmental Policy Evaluation*, Earthscan, 2008.

(a) Experimental: Experimental impact evaluations make use of randomly assigned control and experimental groups.[10] In this method, only the experimental group receives the measure and the control group is used for comparison;

(b) Quasi-experimental: Quasi-experimental methods replicate experimental methods; however, the control group is not randomly assigned. Therefore, this method is used in situations where a true experimental design cannot be applied but where it is still possible to identify an experimental and a control group. While it allows for a comparison between two groups to be made, the comparison may have limitations because the control group is not randomly assigned;

(c) Non-experimental: This approach does not use a control group. Only the experimental group is considered.

13. Both experimental and quasi-experimental evaluation methods require the use of control groups. For this reason, they tend to be difficult to apply to the evaluation of more complex policy measures, particularly in real world settings, where the identification of suitable control groups is difficult, if not impossible. Therefore, experimental and quasi-experimental evaluations are generally most practical when assessing the effects of specific on-the-ground activities. For example, such evaluations have been used to compare the effects of different types of wind energy turbines on the mortality of birds and bats.[11] In India, a methodology has been developed to provide a comprehensive management effectiveness evaluation of the protected areas by randomly selecting each year about 10 per cent of the geographical area under protected area for review.[12] As experimental and quasi-experimental evaluation methods are difficult, if not impossible, to apply for larger or more overarching and complex policy measures, for most of the measures being implemented by countries, non-experimental approaches to evaluation are likely to be the most realistic evaluation method.

14. There are a variety of specific evaluation methods or approaches that can be applied in the non-experimental context. Some of these specific methods can be applied simultaneously or combined as part of the same assessment. They can also be applied by those individuals directly responsible for designing and implementing the measure (self-evaluation), they can be undertaken by, or in collaboration with, the partners involved in implementing the measure and/or the measure's beneficiaries (joint evaluation) or they can be undertaken by outside evaluators that have not been directly involved or impacted by the measure. For example many countries make use of national auditing bodies to undertake or facilitate external evaluations. Examples of specific methods include:[13]

(a) *Programme theory evaluation* – In this approach, the evaluator considers the assumptions underlying the measure, its objectives and the tools used to implement it. The evaluator then makes an assessment of the overall logic of the measure and draws conclusions about the causal relationships that exist. A recent example of a programme theory evaluation is the fitness check, undertaken by the European Commission, of the European Union Nature Legislation (Birds and Habitats Directives).[14] As part of this check, information was collected, including from consultations with members of the European Union and the general public. The analysis sought to identify changes that could be attributed to the intervention of the directives being examined;

(b) *Case study evaluation* – This method evaluates how and why a given measure has worked or not by looking at a specific real world situation. One or several case studies could be used. A

[10] In experimental and quasi experimental assessments, the term "group" can refer to people, populations of plants and animals, or environments. It is a general term for a classification of a collection of things having similar characteristics.

[11] Barclay, R. Baerwald, E. and Gruver, J. (2007). Variation in bat and bird fatalities at wind energy facilities: assessing the effects of rotor size and tower height. *Canadian Journal of Zoology* 85:381-387. https://doi.org/10.1139/Z07-011.

[12] Leverington et al., 2008. "Management effectiveness evaluation in protected areas – a global study. Supplementary Report No1: Overview of approaches and methodologies". The University of Queensland, Gatton, TNC, WWF, IUCNWCPA, Australia.

[13] The methods highlighted here draw heavily from Crabbé, A. and P. Leroy, *The Handbook of Environmental Policy Evaluation*, Earthscan, 2008.

[14] For further information see http://ec.europa.eu/environment/nature/legislation/fitness_check/index_en.htm.

limitation with this approach is that it can be difficult to extrapolate the results and draw overarching conclusions as the observations are limited to the case study considered. An example of an evaluation using this approach is the review of effectiveness of Ireland's strategic environmental assessment directive undertaken by the country's Environmental Protection Agency.[15] One element of this evaluation was a review of 26 case studies;

(c) *Formative/developmental evaluation* – Using this method, an evaluator considers how a measure was implemented. The evaluator does not consider the outcome of the measure but, rather, looks at the differences in how the measure was designed and how it was actually implemented. The objective is to develop recommendations on how similar measures could be better implemented in the future. This is primarily a qualitative approach to evaluation. An example of an evaluation using this approach is a review undertaken in Poland over a period of three years of the extent to which the Government had harmonized its commitments under the Convention on Biological Diversity with its legislation and national strategic documents;

(d) *Before-and-after comparisons* – In this approach, conditions are assessed before and after the intervention. This approach assumes that any observed changes are the result of the intervention taken and that the impacts of the measure are observable at the time the evaluation is undertaken. This method is also called pre-test/post-test. An example of this approach is an evaluation of a payment for ecosystem services programme implemented in Uganda. In this programme, landowners were paid not to cut forests on their property. Landowners were surveyed and GPS and satellite imagery was used to determine tree cover before and after the introduction of the programme. In this way, the evaluators could determine what the effect of the programme had been. Further, in this specific example, the evaluators used a randomized control group and therefore used a true experimental evaluation design.[16] Another example is what has been undertaken as part of the Sharkwatch Programme in the Maldives. In 2009, a reef shark fishing ban was introduced in the Maldives, and, between 2009 and 2013, shark surveys were undertaken to determine what effect the ban had had on shark populations;[17]

(e) *Actual-versus-planned comparison* – With this approach the anticipated outcomes of the measure are determined prior to the measure being implemented. Following the implementation of the measure, the anticipated outcomes are compared with the outcomes actually achieved. Such a comparison was undertaken to examine the effectiveness of measures to offset harmful alteration, disruption, and destruction of inland water fish habitats in Canada as a means of achieving no net loss in fish habitat;[18]

(f) *Counterfactuals* – These are comparisons of situations either with or without exposure to a measure, or before and after the application of a measure. They serve to identify the effect of different variables that may influence the outcome of a measure.[19] For example, scientists compared the observed conservation status in 2008 of all 235 ungulate species with their estimated status under counterfactual scenarios in which conservation efforts ceased in 1996 and concluded that conservation actions had indeed been effective in preventing extinctions, supporting recovery of populations and contributing to stemming decline in biodiversity;[20]

(g) *Economic evaluation* – This approach considers the outcomes and costs of an intervention in monetary terms. Generally, information on the cost of implementing a measure is readily available, while information on the benefits of a measure is more difficult to determine. Furthermore,

[15] For further information, see http://www.epa.ie/pubs/advice/ea/reviewofeffectivenessofseainireland-executivesummary.html.

[16] For further information, see https://www.povertyactionlab.org/evaluation/testing-effectiveness-payments-ecosystem-services-enhance-conservation-uganda

[17] For further information, see http://www.mrc.gov.mv/dv/programmes-and-collaborations/shark-resources-management/

[18] For further information, see Quigley, J.T. and Harper, D.J (2006). "Effectiveness of Fish Habitat Compensation in Canada in Achieving No Net Loss". *Environmental Management* 37: 351. https://doi.org/10.1007/s00267-004-0263-y.

[19] Miteva, D. A., S. K. Pattanayak, and P. J. Ferraro 2012, "Evaluation of Biodiversity Policy Instruments: What Works and What Doesn't?", *Oxford Review of Economic Policy*, vol. 28 (2), p. 71.

[20] Hoffmann, M., Duckworth, J.W., Holmes, K., Mallon, D. P., Rodrigues, A. S.L. and Stuart, S. N. (2015), "The difference conservation makes to extinction risk of the world's ungulates". *Conservation Biology*, 29: 1303-1313. doi:10.1111/cobi.12519.

economic evaluation should also attempt to account for transaction costs as well as the overall social cost and benefits associated with the measure. There are two main types of economic evaluation:

(i) *Cost-benefit analysis* – This approach considers the total benefit from a measure in relation to what it cost to implement;

(ii) *Cost effectiveness analysis* – This approach compares the costs of two or more measures in reaching the same objective.

An example of an economic evaluation is a value-for-money audit on preventing the introduction of invasive species carried out by the National Audit Office of the United Kingdom of Great Britain and Northern Ireland.[21]

15. These different evaluation methodologies have strengths and weaknesses, and the most appropriate methodology to apply will depend on the type of measure implemented, the information sought, the overall purpose of the evaluation and national circumstances. The measures also vary in terms of their feasibility, costs, and the robustness of the information generated. Furthermore, multiple methodologies can, in some cases, be applied as part of the same assessment. Generally, effectiveness evaluations are thought of as occurring once a measure has been completely implemented. However, evaluations can also be undertaken when a measure is being designed, while it is being implemented or once it has concluded. For example, Finland has recently completed a mid-term evaluation of implementation of its national biodiversity strategy and action plan.[22]

16. Regardless of the assessment approached used, information on which to base the assessment will be required. Given this, thought should be given to collecting necessary information throughout the development and implementation of the measure, including documenting any limitations the information may have. Depending on the methodology used, information collected before and/or after the intervention may be required. Relevant types of information include survey data, case studies, documentation related to the measure, budget information and administrative data.

17. Evaluations can also make use of expert opinion, and feedback from stakeholders. The participation of indigenous peoples and local communities and stakeholders in the assessment process is an important consideration, particularly in the context of assessing matters relevant to Articles 8(j) and 10(c) of the Convention and relevant decisions and tools.

18. Often, indicators are also used to assess effectiveness. The European Union, for example, utilized a comprehensive suite of indicators, both from the set of Streamlined European Biodiversity Indicators (SEBI) and from other sources to assess the effectiveness of European Union policies in supporting implementation of the European Union Biodiversity Strategy to 2020. These indicators supported an in-depth analysis of the state of biodiversity, main pressures and responses.

19. However, while indicators provide insights on the ultimate effects of measures, they do not always provide information on the process of implementing a measure or on the factors and context that have affected its success. In order to fully understand the effects of measures taken, the progress measured by indicators needs to be causally linked to individual measures.

IV. CONCLUSIONS

20. Information from national reports, national biodiversity strategies and action plans and other processes under the Convention on Biological Diversity suggests that most countries are undertaking effectiveness evaluations in some form. However, there is little detailed information on these assessments. This makes it difficult for countries to learn from the experience of others and does not enable an analysis of effective measures globally or regionally. More detailed national information on this issue could

[21] For further information, see National Audit Office (2003). "Protecting England and Wales from plant pests and diseases". Report by the Comptroller and Auditor General, HC 1186 Session 2002-2003. https://www.nao.org.uk/wp-content/uploads/2003/10/02031186.pdf.

[22] For further information, see https://www.cbd.int/doc/world/fi/fi-nbsap-v3-p3-en.pdf

greatly benefit Parties in the context of numerous processes under the Convention, including the preparation of the sixth national reports, the discussions on the review of national experiences in implementing the Convention, and the preparation of a follow-up to the Strategic Plan for Biodiversity 2011-2020.

21. The available literature on evaluating effectiveness suggests that there are multiple documented options and approaches for assessing the effectiveness of measures. These approaches have different strengths and weaknesses and require varying levels of resources to implement. Given the different approaches that exist, Parties can choose the most appropriate approach for assessing the effectiveness of measures taken in line with their national biodiversity strategies and action plans. In fact, many Parties, in their fifth national reports, indicate the need to undertake assessments of effectiveness or note that plans were already underway to do so.

V. SUGGESTED RECOMMENDATIONS

22. The Subsidiary Body on Scientific, Technical and Technological Advice may wish to adopt a recommendation along the following lines:

The Subsidiary Body on Scientific, Technical and Technological Advice

1. *Takes note* of the range of approaches for evaluating the effectiveness of policy instruments or measures in supporting the implementation of the Convention and the Strategic Plan for Biodiversity 2011-2020, which is summarized in the note by the Executive Secretary on tools to evaluate the effectiveness of policy instruments for the implementation of the Strategic Plan for Biodiversity 2011-2020;[23]

2. *Encourages* Parties:

(a) To make use of the information in the note by the Executive Secretary[23] when designing and undertaking evaluations of the effectiveness of measures taken to implement the Strategic Plan for Biodiversity 2011-2020, as called for in decision XIII/1, and in the context of preparing their sixth national reports, as called for in decision XIII/27;

(b) To share, through the clearing-house mechanism, information on the methodologies used in these and other evaluations of the effectiveness of measures taken to implement the Convention, including case studies, as well as lessons learned from these evaluations.

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[23] CBD/SBSTTA/21/7.